

**FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.**

[PRICE 6D.

[illegible]

PERCENT, IN MANUFACTURING THE ABOVE COTTELS, WHICH MAY BE HAD  
 OF THE SAME MERCHANT, CLOTHIER, AND GROSS AS THE OTHERS, BECAUSE THE AD-  
 VANTAGES OF LEAVING WASHING WITH SOAP AND WATER.

A board of directors without parity, at two of three, has five directors of business.



On Saturday evening Mr. Jones continued his lectures on this subject, the present one being confined to the wet meter. The lecturer showed the extent to which gas-meters, when charged above the level line with water, were capable of registering against the consumers. He admitted that the gas-meter would, when the water was discharged below the level line of liquor, register less than is actually consumed; but the variation of the meter was greatly in favour of the companies, inasmuch as, by the pouring in of water above the level line, the meter might be made to register 35 per cent. against the public, while by discharging the water below that line, the consumer could not benefit more than 15 per cent.; and he complained that, while a great many meters were found 5 per cent. fast of the level line, very few, if any, were to be found 5 per cent. slow at that mark. He showed also that, by tilting the meter slightly up from behind, it could be made to register slow, and by tilting it in the opposite direction, it could be made to register fast. In order to show the effect of the addition of water above the level line, he reset a five-light meter, which, at the level line, was 15 per cent. fast, and on one pint of water being added, it registered 13 per cent. fast, or against the consumer—the lights not being affected.—(The lecturer was here interrupted, and was unable again to resume his subject, from the attempts that were made to raise a discussion by several troublesome gentlemen present, notwithstanding that it had been explained that the proceedings on Saturday evenings were solely to be considered in the light of lectures, and were not open for discussion.—Tuesday, from ten o'clock in the morning, being appointed for that purpose—the meeting, consequently, broke up very tumultuously. Such conduct as was evinced on this occasion ought not to be permitted, for Mr. Jones has sufficiently shown his wish to have the matter properly investigated, by the appointment of one day in the week (last Tuesday) for experiments and discussion, when all parties interested in the matter were invited to attend, without charge; and, as a matter of courtesy, he ought to be permitted to go on with his regular routine of business, without such (what we must call) disgraceful interruption as was evidenced on Saturday last.)

On Tuesday, the adjourned meeting of gas-meter manufacturers, gas consumers, and parties connected with gas companies took place, a considerable number being present. Mr. JONES, in opening the business of the day, stated the result of an experiment which had been made on a dry meter, sent into the gallery too late on Tuesday last to be publicly tested. It was a meter belonging to a gentleman of the name of Howard, and had been taken down by that gentleman's desire, in the presence of the inspector of the gas company who supplied him, and was sealed up, so that gentlemen fancying it very fast, or much against the consumer. By the standard (Mr. Jones's) used, it was 16 per cent. fast, at a pressure of 8 10ths, and was perfectly correct, according to the standard of the companies, at a pressure of 30 10ths.—Mr. TOWN objected to the standard, as used by Mr. Jones, and contended that the filling of the gas-holder in the tank, would raise the water in the interior, as well as the exterior of the gas-holder, and thereby discharge a greater quantity of gas than indicated by the pointer upon Mr. Jones's plan, and that the scheme now adopted by Mr. Jones had not removed the objection. Mr. JONES, in his lecture of Saturday last, asserted that increased pressure would occasion an increased registration against the consumer in a considerable extent, and, on being asked to explain, referred the matter to this day's experiments. He (Mr. Town) argued that an increase of pressure has only one tendency—viz., to convey a given quantity of gas through the meter in a less space of time, or a greater quantity of gas in a given time, and, consequently, the gas being so compressed when admitted into the meter, expands itself in its former volume, whence the meter registers in proportion, more than is indicated by the gauge of the gas holder.—Mr. WATSON wished to read an opinion given by Mr. Clegg, respecting the objections he raised last Tuesday, to the correctness of the standard as used by Mr. JONES. He then read the following:—"The objection raised by Mr. Wright, that the filling of the standard gas holder would raise the water in the tank, and, consequently, discharge a greater quantity of gas in a given space than indicated by the pointer, is perfectly correct. The quantity of gas discharged, will vary in the same proportion, that the extra perpendicular height of the water in the tank bears to the whole depth of the gas-holder immersed. (Rises) H. LIND."'

Mr. JONES observed that he had followed the plan pointed out by Mr. KELL, to test the truth of these objections—viz., by soldering a piece of tubing to the side of the tank, so as to let the water out as the gas-holder descended in the tank, and concluded that the removal of the water made no difference whatever in the measurement of ten feet of gas in the fourteen or fifteen feet gas-holder, but the experiment should be tried, which would settle the question.

—Mr. BAKER (the manager of Winchester Gas-Works) wished, while the experiment was going on, to make a few observations relating to the way in which the experiments had been carried on on Saturday. A number of meters were placed in a line, and any gentleman was invited to come forward and choose one to be tested; no one spoke, so Dr. ATKINS picked out one upon which the experiments were conducted—it put him in mind of some of the juggling tricks, such as the keys being found in the loaf, &c. He did not wish to charge either Mr. Jones or Dr. Atkins with conjuration, but it was well known, that wet meters were not perfect instruments, and it appeared to him as if the worst one had been selected, more particularly as he noticed that only one was fitted with a pressure gauge, and that identical meter was the one selected. The result of the experiment was, that at the level line it was 35 per cent. fast, or against the consumer, and on pouring in more water than was proper, it registered 15 per cent. against the consumer. This experiment was unfair, as the meter was put out of order by putting into it more water than was proper, and its consumers will mendle with what they are told out to mendle with, they must submit to the consequences. These facts are brought forward as a great injury to the gas companies. He knew, that if 100 gas-meters went wrong, at least ninety of them were against the gas companies, and not, as has been stated, against the consumers. He agreed with Mr. Jones, that it behoved the gas manufacturer to make the consumers well acquainted with the construction of the meter, and he had, agreeable to that impression, given practical lectures to the inhabitants of Winchester.—Some remarks having been made respecting the dry meter, Mr. BAKER said there were great defects in the water meter, for, if put in a warm place, the water evaporated, and the fittings were destroyed, and if in a cold place, it was liable to freeze; there were very serious evils, and if a dry meter could be invented, which would answer the intended purposes, and obviate these difficulties, it would be a great benefit to the public at large, as well as to the gas manufacturer, but this had not been accomplished. He was well acquainted with dry meters, having been, some years since, a manufacturer of them, and supplied many towns, but regretted to say, that he was obliged to replace some hundreds of them. The cause of the failure was, the difficulty—in fact, impossibility—of getting a metal which would withstand the destructive effect of the gas; when the gas was pure, the metal employed long withstood the action, but it could not be got pure in the ordinary way. The ordinary gas had the effect of completely destroying the discharge. The right materials, it was said, had not been employed, and alloy steel, doubly coated with lead gold, was tried, but, from the ammonia and sulphur in the gas, even that was destroyed. He did not wish to say anything against the dry gas meter, for, though the present ones may be different in construction, the principle is just the same to the one he had. The present one had sliding valves, his had a rotary valve, and the principal part of the diaphragm is now covered with metal, and his had only two diaphragms, while the present one has three. The best situation for a dry gas-meter is in a dry warm place, where it would last much longer than in a cold damp place, for the cold condenses the vapour carried along with the gas, and, as with electricity, &c., a deposit of tar, ammonia, and sulphur, is found; a continuous current flows in place in a dry warm situation, which is, therefore, best suited to the dry meter.

Mr. DARRIS said that Mr. Shary condemned dry gas meters because the wet one would fill and answer the required purpose. He would ask, did Thomson and Watts' first steam-engine problem equal work to those in use in the present day, with fifty improvements. He was well aware that one costing \$2,000, or even two coatings of gold, would not succeed; but, as Thomson and Watts' engine, no improvements had been made in dry meters, and he had discovered a metal far superior to gold for the required purpose. When Mr. Shary asked that Sullivan's meter had been tested by two gas companies, Mr. DARRIS promised to be a complete failure, before Mr. Shary purchased the patent. Mr. Shary replied, he was not aware that such was the case.—Mr. DARRIS assured him it was so. He further said that his dry meter had been used by many companies, and was largely in use; the water gas meter which only guaranteed their meters for three years to the companies, while—only Mr. Lott, whose partner he had the honor to be, would have his gas-guaranteed their meters for five years; and his opinion was, that they could not afford years. The dealer he used would withstand the effects of the impurities of the gas; and one of the companies, who tested Mr. Shary's meter, had passed 100,000 or 200,000 feet of gas (he was not sure which) through one of his (Mr. DARRIS') five-light meters, and it still was correct. His respect to the corrosion of the metal, he would feel too happy in procuring an order from the gas company, to whom he supplied the meter tested at Yonkers, for its removal, and he would supply a new one for it; and, if Mr. Shary could accompany him to where it was used, take it down, open it for the purpose of oil, and examine the state of the metal and partition, he could then prove that his improvements rendered the machine perfect.—Mr. DARRIS observed, he found a great difficulty in the valves; many things had been tried, but without effect; at last glass was used, and it was thought the movement was perfect; but again the steel would get between the glass, and make the meter imperfect.—Mr. DARRIS observed, that steel did not get in the valves, or impurities and essential oil were deposited, which would clog the valve. He believed the question should be steel getting into the valves which had contributed, which, if the gas companies were not to allow, give it by the way. His having seen before his observation while sitting in the

gas engineer for nineteen or twenty years.—A long discussion ensued upon the point, but as far as could be ascertained from the committee, arising from a number of gentlemen speaking at once, it appears that dust will get into the meter, and that the meter is not so perfect as it is claimed to be. The meter is, apparently, as much a question as before; as also, if the dust were to get into the meter, what effect it would have. Mr. DeRies contending that dust could not get into the dry meter, except from carelessness during the manufacture.

By this time, the experiment of passing twenty feet of gas through the same wet meter which was experimented upon on Tuesday last, and was then found 54 per cent. fast, was completed, and the result was precisely the same, bearing out Mr. Jones's assertion—that the placing a pipe in let out the water raised in the tank by the sinking of the gas holder, would have no effect upon the quantity of gas passed through the meter.—Mr. JONES stated that this experiment had been made upon six wet meters, and two of Mr. Deffries' dry meters, and in every case the result was the same.—Allusion was here made, by Mr. WRIGHT, to Mr. S. Clegg's opinion; to which Mr. JONES replied, he was glad to have the opportunity of bringing forward Mr. Clegg's opinion—that the water meter never could be correct.—Mr. WRIGHT then said that every great man had his failing.—This caused a little merriment, Mr. Wright having, before, depended so much upon the infallibility of Mr. Clegg's opinion.—when it corroborated his own—and as some of the gentlemen seemed to doubt that Mr. Clegg ever made such a statement, Mr. JONES sent for the book, and read as follows:—

It is a perfect certainty, however, which the meters labor under—rapid decay from exposure to the influence of water, the variation of the water-line, freezing, and the pressure required to work them. The former of these have been, in some degree, remedied by Mr. Hemming, in what he calls his "Patent Protector Gas meter"—to what extent remains yet to be proved, but the last disadvantage can never be removed, owing to mechanical difficulties which it is impossible, in his present form, to surmount. . . . Within the last few years a patent has been taken out by Mr. Clegg, of Glasgow, for the same purpose, and the same objection applies to Mr. Clegg's, in the first instance, which he was obliged to lay aside, both on account of defects in the material of which the meter was formed, and of the untimely action it gave the lamps when immediately connected with them. The dry gas-meter patented by Mr. Clegg, in 1864, is universally adopted in Paris, and is, at present, undergoing alterations; consequently, any description of it would, in a short time, be obsolete. The action of the meter is, however, most correct, and its construction, as a gas meter, its action is perfectly correct, and never failing, but it has not been adopted in England, and, therefore, I shall be silent upon its merits."

Mr. WRIGHT said, he objected to all Mr. Jones's experiments, for, although he assisted and saw the water weighed into the gas-holder, he would not swear it was correct, and he was about to lecture on meters, when he would be glad to see Mr. Jones and Dr. Atkin. He took his objection that, in consequence of what he had before stated, the standard was two-tenths out; he did not deny that the water meters are imperfect machines.—Mr. JONES observed, that a wet meter-maker had said, at the first lecture, that, next to a human being, the water meter was the most perfect thing in existence. The fact was, that now every ironmonger pretends to know all about meters, and fixes and repairs them—this makes out what he complains of on the part of the public. The only way to get over this is, that proper persons should be appointed to inspect the meters. If there was fair play on both sides, an increased consumption would take place, as gas would be used for warming houses and cooking, and thus the gas companies would be enabled to lower their charge for what would become—as it is, indeed, now—one of the necessities of life. His sole object in these inquiries was to disabuse the public mind and bring out facts.—Mr. STUART said, he had two principal objections to water meters—viz., the evaporation and freezing of the water. He agreed with Mr. Jones that the public suffered much by meter-makers that do not understand their business. After Croxley's patent expired, almost every traveller who called in Winchester had an order for a meter; and there were as many different constructions, which, from badness of manufacture, were ultimately obliged to be got rid of.—Mr. JONES said, he never had the slightest information from inspectors or others respecting the proper use of the meter, and, as every body is obliged by the companies to burn by meter, the public ought to be shown that the machine is fair. He should rejoice to see gas employed everywhere instead of candles, for it was well known that full 60 per cent. of the destructive fire which take place in London originate from candles.—Some conversation ensued upon the possibility of water getting into the meter from the pipes, by the condensation of the watery vapour in the passage of the gas from the gasometer, which was declared to be the fact by Mr. JONES and denied by Mr. WRIGHT. Some gentlemen asked Mr. Davies what he would do, as water would spill the meter, to which that gentleman pointed out a syphon, fixed in the side of the meter, which caught the water, and entirely prevented it from entering the meter—as it was proved that water was deposited in the meter from the condensation of the gas in its passage through the pipes.—After some further discussion, of no particular interest, Mr. JONES proposed to try how far drawing off half pints of water from the meter would affect the companies.

The same ten-light motor which was the subject of former experiments was started upon. The meter, with the water at the level line, was 32 per cent. fast; with half a pint drawn off, the thermometer standing at 67 degrees, and the pressure being at the inlet seven-tenths, and at the outlet five-tenths, it still being 32 per cent. fast; the lights were not affected. Another half-pint withdrawn, the thermometer being at 69 degrees, the pressure at the inlet seven-tenths, at the outlet 54 10ths; the lights were not affected; and the result was 32 per cent. slower than in the last experiment, or correct according to the standard; so that, with one pint of water drawn off, the meter was correct. A third half-pint was then drawn off, when the float valve in the meter prevented any gas coming through; five ounces of water, or the half of half-pint, was added, but no effect; two and a half ounces more were added, on the gas being turned on, the lights burned as steady as before; the thermometer stood at 67 degrees, pressure at inlet seven-tenths, at outlet 54 10ths; and the result was 32 per cent. fast; when Dr. Atkin stated, in the first part of the day, that taking water from the motor sometimes made it slower fast, he was laughed at by the water meter makers, and told he had no scientific knowledge; but this experiment proves his statement to be correct.—Mr. JONES wished this could be explained. It appeared that the taking out one pint of water made the motor correct, or 32 per cent. slower than with the water at the level line, while, on two and a half ounces more being removed, it was fast 32 per cent.—The meter was then tilted forward about one and a half inches, the result was that the lights at first flickered, in a few seconds burned very steady and brilliant; the gas passing through a meter without reporting at all.—Mr. JONES remarked, that this would show, that gas comes from wells, they could be checked by descending persons.

After several remarks, as to what would be the effect of tilting the dryer, Mr. DRAHNS observed, that his dry meter would register correctly if used at an angle of 90 degrees, and he could make it so as to register even turned completely over, but it was never intended for a man to walk upon its head. In the next experiment, as much water as the meter would carry was put in, the thermometer stood at 60, the pressure being at the inlet 10 lbs full, and at the outlet 5-10 lbs full. The lights were brilliant and steady, and the result was, that the meter registered 75 per cent. fast, or nearly the consumer. The quantity of water was then drawn off, and which served to be 3 quarts and 1/2 over and above the level line. The experiment taking 1 gill and 7/8 oz. of water out of the meter was again performed, there was some question as to the correctness of the former one, and the test was, with the thermometer at 65 degrees, and the pressure at the inlet 10 lbs, and at the outlet 5-10 lbs, 4 per cent. fast, or against the consumer. The next meter experimented upon was Hutton's improved water meter for lights; on turning the gas into the meter the thermometer was standing 52 degrees, the pressure at the inlet was full 7-10 lbs, and at the outlet only 7-10 lbs, so that it appeared to be so far perfect as to work at the smallest possible pressure; the result was, by the standard, 4 per cent. fast, or in favor of the company.—Mr. TURNER was called upon, while the experiment is being conducted, to explain the principle of this meter. He said the reason in the working of this meter was the correction of the water loss, as shown in A; it is impossible, by the meter in question, for any quantity of water over and above the level line to be added, as a syphon was so placed to carry off any superabundance. Much had been said about the opportunities afforded by water meters or rebabbers to be transmitted upon the gas companies—he could only say, that if people were determined to rob, no skill could prevent them from doing so. His opinion was, that gas companies were sinned against thus dealing; in fact, in his experience, found that it generally is to be the fact.—It was observed that this gentleman had improved his meter since the first lecture, but Mr. TURNER denied his improvement had been made, and been in use, above eighteen months, which much surprised all present, it not having been before heard of. He trusted that he passed that day would remove the effect of all the charges that had been thrust forward, of connivances between the gas meter manufacturers and gas companies to defraud the public. He again stated, that, in the improved meter, no improvement was claimed, except as far as related to the position of the water line, by which no certain advantage could either be done to the consumer or the company.

was asked by Mr. Jones if it were possible for this meter to let the gas without registering. Mr. TOWN replied in the affirmative, by the long piston, which is designed to float, and which could be moved by covering the meter to its top. Mr. DUFFIN again asked that his dry meter could not, by mere tilting, be prevented from rotating. A three light dry meter of Mr. Duffin's manufacture was next shown, the thermometer being at 60 degrees, and the difference of the pressure at the inlet and outlet, about 1/2 inch. It being at the inlet 7.10 lbs., and at the outlet, the result was at 1/2 inch less, or at 6.65 lbs. to the consumer. Mr. TOWN then explained to be allowed a few words, but he was interrupted by the gentleman present, as he only had time to ask a few pointed questions. That the result of his observations would be his own possession for the day after the next, or not being liable to make

variation, it being impossible to interfere with the registry, either for or against the consumer, as, for instance, by adding to, or diminishing the quantity of water, as in the water meter, or the total prevention of all registering, as by tilting it up; indeed, he stated, that the dry meter was the only one which admitted of any modification.—In the course of the day, Mr. Tweed offered that if Mr. Jones would appoint a friend, he would do the same, those two to appoint a third party, and by the five, the various gas meters should be tested, and a majority of the parties to sign the result of every experiment.—After some further conversation, during which the gas people contended that water being found above the level line in meters is the exception, while Mr. Jones observed, that in all the meters he had investigated, he had found it the rule, a vote of thanks was passed to Mr. Jones, for his impartiality, and the meeting separated.—[Mr. Jones will give to-night a summary of the experiments which have taken place, and the results of the use of gas meters, as affecting both the gas consumer and the gas manufacturer, which will be fully reported in our next.]

TALACRE COAL AND IRON COMPANY.

COURT OF CHANCERY, DUBLIN.

IN RE SHAW, A BANKRUPT.—THE ATTORNEY-GENERAL, on the part of the bankrupt, stated that Mr. Charles Howard, who was a petitioning creditor, and the plaintiff, is an issue directed by that court to ascertain if a consideration were given the bankrupt for certain bills of exchange, had been directed by his lordship, on hearing a motion on the subject, to go to trial at the sittings after the next term. The defendant, in the meantime, proceeded to procure the necessary witnesses, many of whom resided in England and various parts of Wales, but found it to be utterly impossible to have them in this country during the present sittings, or even to ascertain the names of those who would prove the original fraud of the Talpacot Coal Company, from the manager of which it was alleged the bills were taken. His (the Attorney-General's) application was to extend the time for trial until the sittings after Easter term, on condition of paying the plaintiff all the costs he was put to up to the present time.—THE SOLICITOR-GENERAL opposed the motion on the part of Mr. Charles Howard.—MR. WHITESIDE followed on the other side. The securities given amounted to a sum of £9000l., 4000l. of which was paid down in cash and two bills of exchange, with four solvent persons as security for the remainder. The plaintiff could not be injured by the delay, as he would be secured, and suffer no loss.—THE LORD CHANCELLOR said, that as it was a case in which great difficulty necessarily existed in finding out original witnesses, he would allow it to stand over until the sittings after Easter term, on the condition that the plaintiff was paid the costs he was put to up to the present moment, and the costs of that motion.

COURT OF COMMON PLEAS—JAN. 30.

THAMES HAVEN DOCK AND RAILWAY COMPANY v. HALL.—In this case a rule had been obtained in the beginning of the term, calling upon the plaintiffs to show cause why all the proceedings should not be set aside, and the costs paid to the defendant. The action had been brought for calls due on shares said to be held by the defendant, who had, however, availed himself of a resolution passed at a general meeting, that those shareholders who chose to do so might give up their shares to the secretary, in trust for the company—thus ceasing to be proprietors; he also pleaded fraud, and that the company had ceased to exist in 1837, as there were then only seven directors, while the Act of Parliament required twelve. The court considered that full authority had been given to the company to sue, and though it had been stated to the contrary, there was the clearest evidence that the company were suing—the rule must, therefore, be discharged with costs.—In another action by the "Company v. Price," the same result followed. Mr. Serjeant CHANNELL admitted he could not see any substantial difference between this case and the former.

VICE-CHANCELLOR'S COURT—JAN. 31.  
MUNTS V. GREENFELL.—MR. K. PARKER (with Mr. Sergeant Dowling and Mr. Hetherington) moved to dissolve an injunction, obtained by the plaintiff on the 29th of December last (and which was at that time reported in the *Missing Journal*), to restrain the defendants from infringing the alleged extent of the plaintiff. The order required the plaintiff to bring an action to try his right with all due diligence, and it was alleged that due diligence had not been used, and therefore the injunction ought to be dissolved.—MR. VIGRAM and Mr. FOLLETT opposed the motion, and, after a long discussion.—His HONOUR directed that the venue of the action should be changed to either London or Surrey, at the election of the defendant; notice of such election to be given to the attorney of the plaintiff on or before twelve o'clock on Thursday next; both parties to consent to set down this cause as soon as might be, for the present sittings for London, if that were the venue chosen; to admit that sufficient notice of trial had been given, either for the sittings or the sittings, as the case might be; the trial not to take place until after the 15th of February; the defendant, on or before Saturday next, to deliver to the plaintiff, or his attorney, a list of all such books, pamphlets, publications, specifications, and lectures, as he shall offer in evidence, or produce for any purpose, at the trial; the parties to have liberty to apply, and all costs to be reserved.

[From the *Mechanics' Magazine*.]

James Boydell, jnr., ironmaster, Oak Farm Works, Dudley, for improvements in the manufacture of keel-plates for vessels, iron gates, gate-posts, fencing and gratings. Patent dated May 24, 1842. Specification enrolled Oct. 24, 1843.—"Keel-plates" are at present fashioned of any desired form, by means of hand hammering, with the aid sometimes of heat. Mr. Boydell passes the plates through rollers suitably formed for that purpose, and in doing, he says, enabled to produce both better and cheaper keel-plates. Iron gates, fencing, and gratings," he manufactures, by first placing the bars, or other parts of which they consist, in their intended positions, and binding them together with wire or wood clamps; then heating them in a furnace to a good welding heat, which consumes the ligatures, and causes the pieces of iron to run sufficiently together at the parts of intersection so low of their being removed on a truck from the furnace to the rollers, by displacing them carefully between which they are securely welded together in parts. "Gate-posts" are to be improved by casting enlarged feet thereon, instead of the usual scoria, or cylinder of iron-works.

Stewart Hall, C.E., Hartford, for improvements in the combustion of fuel and smoke. Patent dated May 9, 1943. Specification filed November 1942.—The improvements which form the subject of this patent are stated to be supplementary to those described under Mr. Hall's previous patents, relating to combustion, of 1936, 1938, and 1941. The first consists in certain "peculiar" arrangements for supplying atmospheric air to furnaces through a great number of passages, or in a greatly divided state. The air first introduced through a great number of tubes standing vertically at the base, or chimney, end of the furnaces, the different streams from which settling, pass into one common along a hollow chamber under the main flow. It still it arrives at the bridge, where, in a considerably heated state, it is divided into two currents, which are carried one on each side, round the brickwork, or fire-place, inclosing the burning fuel, and admitted into the fuel through a number of orifices, in the brick-work and the fire-dow. The second and improvement consists in producing a more rapid combustion in the furnaces of locomotive-engines, by admitting through various channels, atmospheric air to the carbonaceous parts of the fire as well as to the volatile parts. This consists in causing a draft through the fire of locomotive-engines when the engines are stopped, or before they are set to work, by means of a pipe which proceeds from the front of the locomotive to the chimney, and passing up it is connected to another pipe, which is to be dipped into the boiler of any other locomotive at hand which happens to have its steam up. A fourth consists in preventing the escape of sparks from locomotive chimneys, by drawing jets of water from time to time into the chimney, by means of perforated pipe connected to the force pump; and intercepting those sparks which are not so quenched by means of a perforated band, the aggregate amount of the holes in which is to be greater than the area of the chimney.

**ARTESIAN WELL.**—It is perhaps generally known that an Artesian well here, and has been for some time, in progress at Chickadee, which, like the one in Southampton common, is now sunk to upwards of 500 feet in depth, and obtaining anything like an adequate supply of water for the use of the place. This well has been carried down through the chalk, through a bed of sand, or marl, beneath it, and is now sinking in a hard solid rock, probably the corresponding or similar bed to the Parkhurst stone, with which we are all familiar, and which is one of the beds of green sand, or gail formation, which under the chalk. The Southampton well is now altogether about 500 feet, or 450 feet of which is in the chalk. The chalk is probably 1000 feet deep in Southampton, in which case there will be upwards of 500 feet to sink to through it, and what then—say or chalk, hard rock, don't you?

**JERMAN AND SUNDERS RAILWAY.**—(From a Correspondent).—The project of a line is about to cross the breadth of his railway and which is to the Parliamentary width, which will enable his goods to be shipped this railway; this has occasioned a marked improvement in the service. In other circumstances, we expect will extend itself to some other way properly in the north.

**SEAWARD AND CHARLESTON RAILWAY.**—In the House of Commons, last night, Mr. Glynne presented a petition, praying for a bill to extend powers possessed by the directors under the present Act of the company.



## PROCEEDINGS OF PUBLIC COMPANIES.

## COBRE COPPER MINING ASSOCIATION.

At a half yearly general meeting of the proprietors of this association, held at the office of the company, 26, Austin-friars, on Tuesday, the 31st ult., Sir JOHN PIRIE, Bart., in the chair, the advertisement calling the meeting having been read, the following directors' report was submitted:—

## REPORT.

It has been the good fortune of the directors, on most occasions of meeting the shareholders, to have been enabled to congratulate them on the continued prosperity of the company, and, though they cannot express themselves on strategy on the present occasion, they have, nevertheless, the pleasure of assuring them that the prospects continue favourable. The quantity of ore raised during the first eleven months of 1882, has been large, though not so rich as formerly, nor so considerable in quantity as that of the two previous years; it has amounted to 17,000 tons. In addition to the increased quantity of the ore, it has fallen off somewhat in its quality. Several adverse circumstances have occurred to lessen the profits of the company on the ore during the preceding year, one of the principal of which has been the low price, but which the directors trust will prove only temporary, a material rise having taken place at the last public ticketing at Swansea. The duty also, which exceeds 5 per cent. on the value, has amounted to a considerable sum. This duty, though far, has fallen extensively upon the importers, no additional price having been obtained for the ore, in consequence of its admission to the home market. Under these circumstances, the duty amounting to no considerable sum, the directors, unless the ore fetched better prices to indemnify the company against the duty, will be more disposed to listen to the proposals of foreign buyers for selling the ore abroad, exempt from duty, either at Swansea or in Cuba, and deliverable on the continent. Inquiries on this subject have already been addressed to the directors of the company, on behalf of houses on the continent, and, unless this market offers more encouraging prices than have lately prevailed, there is little doubt but that this country will lose a considerable part both of the business of smelting and of the carrying trade. A comparative statement of the produce of the ore during the two last years, as far as the same can be made up, is now laid before you, and the difference arising from the causes just mentioned, you will find to be considerable. The general depression of commerce has no where been more felt than in the island of Cuba, where the colonial produce in general has been selling so low, as to occasion great distress and embarrassment amongst the inhabitants, in consequence of which the company's agents, not having the same facility of obtaining money on the spot, for their bills on the directors, it has been found necessary to authorise them to draw in anticipation of their wants, and to obtain supplies of cash, through the banks in Jamaica and St. Thomas's, the effect of which has been to place the company under an advance of upwards of 10,000, on this account.

The directors are happy to say that the agents in Cuba have lately been able to make some reductions in the expenditure. The directors will continue to press upon their attention, the necessity of making still greater reductions, and they hope that the best exertions of these gentlemen will be used for that purpose. This is not the meeting for laying an audited account for the year before the proprietors, that can only be done at the July meeting. But a financial sketch of the present situation of the company is now on the table, and though you will observe that the assets on hand exceed the liabilities, the directors have not thought it prudent to declare a dividend on the present occasion, but they flatter themselves that before they meet you at another half-yearly general meeting, a beneficial change will have taken place in respect to the points to which they have alluded, and that still better results may be looked for from the sources to which they are now about to advert. The agents and mining captains having considered the direction of the different bodies in the company's mines, have thought it advisable to discontinue several new mine contingents to the company's grounds, and in the production and prosperity of which the directors entirely concur. A company had a few years ago been working a mine, called the Perla, and, as it is contiguous to some of the company's mines, and having been offered to this company, together with a place called the Potrero, which has some buildings on it that will be useful, the company has purchased both for the sum of 10,000, sterling.

There is at Cobre, immediately adjoining the church, some valuable mining ground, called the Sanctuario ground, and which this company denounces regularly, in conformity with the mining laws of Spain. It is surrounded by our mine, the Ysaacilla, some ground annexed to our mine, the St. George Mine, belonging to the Santiago Company, and the San José Mine, belonging to Mr. Rivery and others. These parties have instituted some legal proceedings to prevent this company from getting possession of their just rights, but, according to the opinions of all the Spanish lawyers who have been consulted by this company, both in Cuba and in Spain, our right to the ground is indefeasible, and the directors confidently hope that, before any long period elapses, the company will be put in possession of it. This ground will form an important addition to the company's property.

Captain William Reynolds, who has been in many years the company's mining captain in Cuba, now present, expressed his happiness to assist the proprietors in any information respecting the mines, and which his perfect knowledge of them will enable him to impart. The proprietors have, probably, long since learnt the lamented death of Mr. John Hardy, jun. That gentleman, during his lifetime, was of the greatest service to the company; he was ever ready, though not in the direction, to assist the directors with his opinions and advice, and which, from his long experience in Cuba, were exceedingly valuable. By his death the company has sustained a great loss, and his more immediate connections are esteemed relative and friend.

The directors have already expressed their hope, that still greater reductions will be made in the heavy expenditure of Cuba, and though the results of the return made there may have hitherto fallen short of their expectations, the directors are sensible of the arduous position in that respect in which Charles Clarke and Michael Mahon, Esqs., are placed, and have great pleasure in noticing their zeal and attention to the company's interest. They have also the satisfaction of expressing their approbation of the steadiness and skill with which the mining captain, James Reynolds, directs the operations of the company; and also that of Captain Thomas Maynard, and all the other sub-capital and miners generally, whose conduct is reported to be regular and industrious. At this meeting two directors, Robert Passenger and George Probyn, Esqs., and one auditor, Walter Shairp, Esq., got out of office by rotation, and, being candidates for re-election, a ballot for their re-election will take place at the close of the meeting.

A summary of the financial position of the company having also been read, it was moved by Mr. RICHARDS, seconded by Mr. CURTIS, and carried unanimously:—“That the report now read be received.”—It was moved by Mr. RICHARDS, seconded by Mr. MORRIS, and carried unanimously:—“That this meeting be deeply impressed with the necessity of practising the utmost economy in Cuba, consistent with the efficient working of the mines; and, therefore, beg the directors to turn their attention particularly to this subject, and to have the kindness to report to the next half-yearly general meeting the measures taken in consequence of this resolution.”—It was moved by Mr. NICCOLLS, seconded by various gentlemen, and carried unanimously:—“That the thanks of this meeting be given to Captain William Reynolds, for the great zeal and industry displayed by him in the affairs of the mine, during his long residence in Cuba.”—Thanks were moved, and carried unanimously, to the directors, for their attention to the company's interest, and the same having been acknowledged by the chairman, a ballot immediately took place, when Robert Passenger and George Probyn, Esqs., were re-elected directors, and Walter Shairp, Esq., auditor, of the company.

## HIBERNIAN MINING COMPANY.

The half-yearly meeting of the shareholders of this company was held at the establishment, in Austin-friars, on Friday, the 3d instant, J. H. HEADSHAW, Esq., in the chair. The report was read by the SECRETARY, from which it appeared, that the new Drumlake seam of coal fully maintained its character for quality and regularity, though the demand had not kept pace with the supply, though the long drought that prevailed, causing much toil to be consumed, and through other circumstances. The mine had, notwithstanding, more than paid its expenses, and, through the long desired communication between the colliery and the districts round Lough Erne, by the Ulster Canal being now perfected, it was hoped that great profit would come derived from the sale of coal in the neighbourhood, as the seam was upwards of six feet high, and likely to afford a supply for several years to come. The quantity of coal raised during the six months was 7901 tons—this cost 2546, which produced 2500. The call on 100 shares had since been paid. After the reading of the report, a long discussion took place, as to the reserve and guarantee fund, which was thought unnecessary, as that was a ready money concern, but the CHAIRMAN said that the keeping up such a fund, to the extent of 10,000, was required by the Act of Parliament.—Mr. WELLS thought, if the remaining balance of 1300, was also to go to the guarantee fund, it would be left to his grand-children to reap any benefits, before the other 7000, could be put aside to make up the 10,000.—The question was at last left for the consideration of the directors between this and the next half yearly meeting.—A PROPRIETOR then alluded strongly to the expense of the office establishment in London, which, instead of doing, per annum, he would reduce to something like 1000, a corresponding clerk being, in his opinion, all that was necessary.—Sir GEORGE LAWRENCE and the CHAIRMAN said, that, as the services of the directors were gratuitous, they would rather retain than be directors under such circumstances.—These directors and an auditor having been re-elected, a vote of thanks was passed to the directors, and the meeting adjourned.

## WEST WHEAL JEWEL MINING ASSOCIATION.

A special general meeting of this company took place, pursuant to advertisement, at the office, 25, Threadneedle-street, on Thursday, the 2d instant.—The chair was taken by J. HARRIS, Esq., when, after some discussion, a resolution was passed unanimously for the discharge of Mr. Carden, from the office of purser, and also for his removal, as well as that of Capt. John Lyle from the committee of management at the mine.—Mr. Edward Burgess was elected purser to the association, on the condition that he holds no shares in the concern.—In reply to Mr. Bide, the CHAIRMAN said the mine was now beginning to work so prosperously, that the shareholders might look forward to profits.—After some remarks from Mr. Harvey, Mr. Nicholson (a director), Mr. Carden, and others, a vote of thanks was passed unanimously to the directors, as well as to Collier Harvey, Esq., for their attention to the interests of the company, when the meeting adjourned.

## WEST DURHAM RAILWAY COMPANY.

A meeting of the proprietors of this undertaking was held on Tuesday, the 31st ult., at the George and Vulture Tavern, Curwyl, when one proprietor attended, but was not permitted to be present at the proceedings; one of the directors stated that it had always been considered a strictly private undertaking—proprietors had never been admitted to their meetings, and they now so reason to alter such system.

## LONDON AND GREENWICH RAILWAY.

The half-yearly general meeting of the proprietors took place at the London Tavern, on Tuesday, the 31st ult., for the purpose of receiving the report of the directors, &c. for the past half-year.—W. SHADDOCK, Esq., president, and Mr. J. WILSON read the report, which set forth that the contemplated alterations of the London termini of the railway and the approaches thereto had been commenced, and would be completed forthwith. A satisfactory adjustment had been come to between the directors and the joint station committee of the Brighton, South-Eastern, and Croydon Railway Companies, for an exchange of the surface of the stations of London bridge, as required by the Act. In order to remove any pretext for the above companies seeking station-room elsewhere, the directors had agreed to allow still further space at London-bridge, but notwithstanding which the directors regretted to state that the South-Eastern and Croydon Companies had expressed their determination to apply to Parliament for a branch railway from the Croydon line, near Cobet's lane, to the Bricklayers Arms, which measure was obviously intended to avoid the toll on the Greenwich line. Although the Greenwich traffic had diminished, there was a net surplus of 2007. 12s. 4d., after paying interest on mortgage, bond debt loan, &c.; out of which it was recommended that a dividend of 1s. per share should be declared for the past half year on all the unprivileged shares. The station at the Spa-road had been completed and opened to the public. The directors proposed to raise an additional 50,000, on mortgage, the principal payable at the expiration of seven years; and considering that the net yearly income, after paying all expenses, was last year upwards of 27,000, and that the annual interest on the present mortgage, or bond debts, was only 9165. 1s. 6d., the above sum would be obtained at a moderate rate of interest. The number of passengers carried during the half-year had been 694,326. The report having been put for adoption, a long and most abstruse discussion ensued, as to the course which had been adopted with regard to the tolls by the directors, and those of the Croydon Company.—Mr. HILL moved, as an amendment, that a committee be appointed to arrange the differences between the Croydon and Greenwich Companies, and to recommend such a course as would tend to promote the interests of the Greenwich Company.—A violent discussion again ensued, it being contended on the one hand, that loss of the toll from the Croydon Company would be a great injury to the undertaking, and on the other, that the London and Brighton Companies were prepared to take up an intermediate traffic.—Towards the close of the proceedings, Mr. Williamson (the chairman of the Croydon Company) got on a form, and attempted to address the meeting, but they refused to hear him. Ultimately the report was adopted by an immense majority, a vote of confidence passed in the directors, and the meeting broke up.

## GRAND JUNCTION RAILWAY.

The half-yearly meeting of the proprietors of this company was held on Tuesday last, in the Cotton Sale room, Exchange-buildings, Liverpool, Mr. JOHN MOSS (chairman of the board of directors) in the chair. It appeared from the report read to the meeting that the clear profit of the half-year was 119,470. 2s., to which was to be added 5612. 6s. 3d., surplus from the previous half-year—making a total of 125,082. 6s. 3d.; from this amount the directors recommended that a dividend of 5d. per whole share, and proportionate amounts on the other stock, be declared; this would absorb 110,165. 1s. 6d., leaving a balance of 14,917. 6s. 3d., which the directors proposed to appropriate as follows:—Income tax for half a year, 3635. 17s. 10d.; depreciation and renewal of stock, 3000;—leaving to be carried forward to the credit of the present half-year the sum of 6382. 6s. 3d.

## NORTH UNION RAILWAY COMPANY.

At the half-yearly meeting held at the Clarence rooms, Liverpool, on the 3d inst., THOMAS W. RATHBONE, Esq., in the chair, the directors' report stated that the disturbed state of the manufacturing districts during the most profitable portion of the year, had seriously affected the gross receipts of the last six months, in the coaching department, which was nearly 4000, less than in the corresponding period of 1841, though still higher than in the preceding half year. The receipts from merchandise and coal still continued to improve. Every practicable economy, consistent with the efficiency of the railway and the working stock, continued to be carefully carried out in the expenses, and every exertion would be made to improve the net income of the undertaking. The traffic receipts for one and a half year, ending December 31st, amounted to 30,107. 6s. 3d., and the expenses to 14,161. 7s.—leaving a net balance of 15,945. 12s. 3d. The dividends on 6339 shares, at 20s. share, amounted to 12,678. 10s.—leaving to the credit of the profit and loss account, 3267. 6s. 3d.—A resolution for the payment of a dividend of 2d. 10s. per share having been carried unanimously, the meeting separated.

## SOUTHAMPTON DOCKS COMPANY.

This was a meeting, held at the George and Vulture Tavern, on Monday, the 30th ult., of parties connected with these docks, called by Mr. Richards, who had been to Southampton, and visited the company's works, for the purpose of giving some information as to the state of the same.—Mr. RICHARDS read the advertisement convening the meeting, and observed that he should apologise to the directors for calling the present meeting in the words of Mr. Leggiss, their chairman, who, at the Royal Mail Steam-Parcel Company's meeting, said:—“I have every respect for the directors, and trust that anything I may say may not be personally considered by them. A more respectable board cannot be collected in the city of London, but it is not in their individual capacity they must be addressed, but as a corporate body.” Mr. Richards then alluded to the conduct of the directors, in refusing to pay the interest of 4 per cent., guaranteed to the proprietors by the 27th section of the Act of Parliament. “All the dock or docks are completed.” He reminded, that at a meeting held in this house, the then chairman (Mr. R. Heathcote), in order to induce parties to invest their money, held up this Act—now by the directors abused—as an exception to all other Acts, in having a clause which rendered this company a proper investment for parties generally having small capitals in the funds or otherwise. The course of events had proved this to be a very bad clause, but that was no reason for a breach of agreement between the directors and shareholders. The company had expended about 300,000, and had merely a trial basin finished, which was no more proportion to the intended docks as the Shadwell basin did to the London Docks. The fact was, the company was not in a position to pay the interest; under this difficulty the directors obtained the opinion of some legal gentleman, whose name has never transpired, who gave quite a different meaning to the words of the Act of Parliament than that contemplated by the Legislature, but which words he (Mr. Richards) was properly advised could bear but one interpretation—still, the object being, of all risks, to get rid of the payments of interest, the directors, at the meeting held on the 31st of August last, got a resolution passed, that the payment of interest should cease on the opening of the docks for business; but this on the following plea:—That they had, it was true, commenced the opening of the docks a few days ago, as the proprietors were aware, but that they could not make them a bond fide beginning, on her Majesty's Customs officers declined expending themselves to the weather, there not being either shed, warehouse, or other erection for their protection; but, said the directors, pass a resolution, that the interest shall cease on 20th September, by which time a shed will have been completed. Mr. Richards, however, pointed out to the directors the folly of so wanting their remission, for, as they had hitherto been in error in almost every calculation they had made, it was but too probable their shed would not be finished by 20th September. Upon this representation, and this only, the resolution was altered, and allowed to pass in its present shape, the understanding being, that the interest, at all events, was to be continued till the shed was completed. On applying, on the 16th of January, for the interest due on the 31st December previous, he (Mr. R.) was told that he might have it up to the 23rd November, on one that day an empty timber vessel, the *Reichow*, entered the docks—so they had opened for business—while the fact was, that the cargo had been unloaded in the river before—so this was only a pretence to get rid of this payment of interest. Now, why was the 23rd of November fixed upon?—Because, on the 23d, a loan was obtained from the London Joint Stock Bank, to the extent of 10,000, one of the conditions of which, doubtless, was, that the interest should cease to be paid; so this empty timber ship was sent in the next day to cover the refusal to pay the interest guaranteed by the Act; in fact, guaranteed by the resolution of 31st August, for a considerable time to come, at all events. Now, was there yet a shed?—No! he had just returned from Southampton, and had, on the works, conversed with Mr. Giles (he said so), and he could tell the meeting the dock had been more like a ploughed field than anything else—not a crane finished—their walls had given way—and neither shed or erection of any kind. The proprietors' money expended, he must say, to have been squandered. There had been no less than five engineers employed—Messrs. Collett, Milne, Beadle, Walker, and Giles—and yet nothing finished, but 200,000 spent—indeed, the people of Southampton made a joke of the concern, and inquired how many more engineers were to be sent to them. The walls, Mr. Richards said, were in progress of land trying, and from Mr. Giles he heard they would require an expenditure of 10,000, to secure them, independent of day work. But, why was there a necessity of the company being of the expense of land trying?—Why, because contractors and businessmen were not properly bound to do the work. The directors ought to have seen that the bondsmen or the contractors made good the contracts, if the contractors were not able to do it themselves. Now, the directors had not done their duty to the company, as they had not sufficiently seen that the contractors were responsible men. The directors, it would seem, then go to law upon their so-called contracts, in the dispute they now are in about the same is referred to one individual, Mr. McNeill, C.E.—how they fancy to get rid of the responsibility they find hanging over them. With regard to the sheds, he said again, there were none. Mr. (Mr. Richards) asked Mr. Giles, when were the sheds? he answered, that as these walls, pointing to them, would not stand, so more would the sheds stand upon them. Yesterday, he examined the cash-book of the company, which

had not been made up for some time; and, after counting up page by page, he found that there was no more than about 10,000 in hand, with which sum there was much, indeed, to be done; and, notwithstanding that the company is an circumstances, yet the directors are receiving their 1000, and Captain Ward (of Southampton) has even had his salary increased lately from 1500, to 2000, per annum. In conclusion, Mr. Richards said, that he was as completely convinced that no jury would, for a moment, allow this pretended opening of the docks to be a bond fide opening for business, but only another as a gross injustice to the proprietors, that he had commenced an action for the recovery of interest in the manner pointed out in the 27th section of the Act. Mr. Richards then thanked the gentlemen present for their attention, and the meeting broke up.

## AUSTRALIAN TRUST COMPANY.

The half-yearly general meeting of the proprietors of this company was held at the office, in Moorgate-street, on Saturday, the 26th ult.—JAMES ABEL SMITH, Esq., M.P., in the chair.—The usual preliminary having been gone through, the directors' report was read, from which it appeared that on the 1st July last, the deposits on interest amounted to 61,000. 12s. 10d. On the 31st ult., this amount had increased to 113,019. 12s. 10d. The advances in Australia on mortgages, at 10 per cent. by the last half-yearly report were 127,000, which, on the 1st July last, had increased to 227,000, which increase had been effected with the utmost caution by the colonial directors. The whole of the half-yearly interest has been collected within one month from its becoming due, and the greater part within the first few days; the directors, therefore, considered that the present state of the affairs of the company fully justified them in recommending a dividend of 3 per cent. for the half year, free of property-tax, on 30d. per share, the amount of calls to the 1st of July last. After providing for this dividend (amounting to 4992. 14s.), and the payment of 1055. 2s. 6d., of preliminary expenses, there will remain 5533. 2s. 3d. to form the commencement of a reserve fund.—A discussion followed, as to the propriety of having, previous to future meetings, the report and accounts circulated among the shareholders, and the CHAIRMAN said it should have the careful consideration of the board. In answer to inquiries from a shareholder, why a larger dividend was not declared, when the reserved fund appeared a greater sum than that about to be divided, he said the board were not desirous of tempting the public by giving large profits, and leaving little or no reserve fund, but by declaring a moderate dividend, so as to ensure a reserve fund to meet all possible contingencies—a course which, in the long run, he contended, was, from experience, found to be the safest and most politic to pursue. This sentiment met with the general approbation of the proprietors.—The report and accounts were then adopted, thanks were voted to the chairman and directors, and the meeting separated.

## AUSTRALIAN AGRICULTURAL COMPANY.

The annual meeting of this undertaking was held on Tuesday, at the company's establishment in King's Arms-yard, Moorgate-street. J. S. BROWNIE, Esq., M.P., in the chair.—Mr. BROWNIE (the secretary) having read the notice convening the meeting, the CHAIRMAN read to the proprietors a report of considerable length, from which it appeared that the quantity of seven acre cultivation, in December, 1841, was 2033, being an increase of 101 acres over the previous year. The total number of sheep was 78,400, horses and ponies 406, horned cattle 531. The non-assignment of convicts, the expense of free labour, and the diseases prevalent amongst the sheep, had caused a considerable loss to the company, the sale of live stock having produced only 5095. 6s. 3d., showing a decrease of 15,313. 15s. 9d., over that of 1840. The number of persons on the establishment was 143 free labourers, 118 ticket of leave men, and 360 convicts—being 73 convicts less than in the year preceding. The coals sold in 1841 were 31,950 tons, being an increase of 1401 tons, and in the seven months of 1842, were 20,790 tons. The clip of the company's flocks for the year 1841, comprised 920 bales of wool, which sold at prices varying from 1s. 11d. to 1s. 7d. per lb., and realised net 8101. 2s. 6d. The hides were 303, and the horned tips 598, which sold for 1091. 9s. 3d. Sixty-two bales of wool had arrived, but remained unsold. The result of the operations for the year 1841, and the revenue in New South Wales, was, from sale of coals, live stock, &c., 28,160. 10s. 1d.; in England, 2302. 11s. 9d.; wool unsold, 1190;—making a total of 31,574. 12s. 6d. From which deduct the expense of management, in New South Wales, 31,655. 2s. 10d., and in England, 2746. 1s. 6d., there would be a surplus revenue of 3731. 11s. 1d. Under these circumstances, and the great difficulty of effecting sales in the colonies, the dividend was suspended. The total value of the company's property was reckoned at 799,990.—of which there were 1,000,000 acres of land, 425,000; coal mines, &c., 114,477; sheep, 131,297; horned cattle, 33,644; buildings, 30,111, &c.—Prior to the adoption of the report, some observations were made by Mr. Molineux, Mr. Smith, Mr. Fletcher, Mr. Edwards, and other proprietors, when the three following gentlemen, who retired, were re-elected directors:—William Crawford, Esq., G. D. Bruce, Esq., and the Hon. J. T. Leslie Melville; also the following gentlemen, as auditors:—J. G. Ravenshaw, Esq., J. Abel Smith, Esq., M.P., and G. S. Thurston, Esq.; a new auditor—viz., George Ross, Esq., was also elected unanimously.—On the motion of Mr. MOLONEY, seconded by Mr. FLETCHER, a vote of thanks was passed to the directors, when the meeting separated.

## LONDON AND COUNTY BANK.

The annual meeting of the shareholders of this bank was held at No. 71, Lombard-street, on Thursday, the 2d instant, to receive the directors' report of the proceedings of the company to the close of the year 1842, for the declaration of a dividend, the transaction of other business, and the election of three directors.—The chair was taken by WILLIAM HAWES, Esq., who requested Mr. NICHOLS (the secretary) to read the advertisement convening the meeting, when the CHAIRMAN, in a speech of considerable length and ability, addressed the meeting, in which he referred to the monetary transactions of the metropolis during the past year, and their consequent effects on joint-stock banks; and alluded to a recommendation of the Times, that a body should be formed in such companies, to act as between the shareholders and directors, and that, prior to the annual and half-yearly meetings, they should examine the accounts before they were laid before the shareholders. He was happy to say, that this was the only bank in London having such a body of auditors between the proprietors and directors. These gentlemen were present, and could give any statement they pleased, and he believed they had not been seen by the directors since they made their examination. It was stated that the public had a right to interfere themselves, as between the shareholders and directors, but he thought it rested between the directors and those immediately interested. The chairman then alluded to the relative merits of joint-stock and private banks, and called the attention of the meeting to the coming session of Parliament, when, probably, the renewal of the charter to the Bank of England would be proposed, and discussions connected with joint-stock banks would be prominently brought before the public; but he thought the least interference on the part of Parliament the better, and that it was desirable the responsibility in good management should rest on the shareholders, and a steady increasing business would be the best criterion the public could have of the good management of such concerns. He then alluded to the report about to be read, and stated that the dividend of 5 per cent. would be on the increased capital of the company, which was greater than at any former period. In relation to the action brought by Mr. Jeffery, it was only alluded after the directors found that they could not compromise the matter by an apology. As to Mr. Dighton's transactions, the directors had been anxious to bring the matter to a close, but they were prevented, by the plaintiff withdrawing the record, and postponing the trial. After some other observations, the chairman requested Mr. NICHOLS (the secretary) to read the report and balance-sheet, from which it appeared, that, after the expenses of management, &c., there remained a net balance of 5500. 8s. 6d., from which the directors recommended a dividend of 5 per cent. per annum for the half year ending 31st December, 1842—leaving 2810. 13s. 6d. to be placed to the guarantee fund. These new branches had been opened at Canterbury, Chichester, Peterhead, and Sandwick. The liabilities were—paid-up capital and reserve fund, 120,000. 0s. 0d.; due to customers on current and deposit accounts, and other liabilities, 655,000. 7s. 3d.; profit and loss, 30,971. 0s.—Total, 1,011,127. 10s. 11d. The assets were—cash on hand, 189,000. 0s. 0d.; securities, discounted bills, &c., 797,534. 7s. 6d.; preliminary expenses, &c., &c., 45,512. 7s. 11d.—making, in all, a total of 1,011,127. 10s. 11d.—The report will be found entire in another column.

The CHAIRMAN said, that, having heard the report and balance-sheet read, he would be happy to give any shareholders further information; but, if not, he should move that the report be received and adopted. Mr. CURTIS wished to know what the amount of the guarantee fund was this year, compared with 1841.—The CHAIRMAN said, that in December, 1841, it was 4000, and the dividend 3017; in 1842 the dividend was 3000, and there was 2510, towards the guarantee fund, which would be made 5500. In reply to Mr. McWhinney (of Brighton), the CHAIRMAN said, the expenses of the chief office and the branches had not been divided before, making 43,000 together; but their share had increased from 600,000, to 1,000,000, which was a proof of their prosperity.—The report was then adopted, and a dividend of 5 per cent. per annum, since the 1st January last, for the past half year, and payable after the 10th instant, was agreed to unanimously.

The CHAIRMAN then remarked, that there was 3010. 12s. 6d. of the dividend of the shareholders, which the directors recommended to be carried to the guarantee fund. A PROPRIETOR inquired if that remained after payment to the directors?—The CHAIRMAN replied yes, after the payment of everything. Mr. KITCHEN (of Dover) said, he thought it would be admitted by all, that great credit was due to the directors, for the care and attention they had bestowed upon the interests of the establishment; he, when it was ascertained that the assets of the company were now upwards of one million, it must be







MEETINGS OF SCIENTIFIC BODIES.  
IN THE ENGLISH WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUE.
Entomological	17, Old Bond-street	Monday	8 P.M.
British Architects	16, Grosvenor-street	Monday	8 P.M.
Medical	Booth-court, Fleet-street	Monday	8 P.M.
Linnean	Botanical Society	Tuesday	8 P.M.
Microscopical	21, Regent-street	Tuesday	8 P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
Chemical	Society of Arts, Adelphi	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
Medico-Botanical	32, Sackville-street	Wednesday	8 P.M.
Graphic	Thatched-house Tavern	Wednesday	8 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	8 P.M.
Royal	Sumner House	Thursday	8 P.M.
Antiquaries	Sumner House	Thursday	8 P.M.
Ed. Society of Literature	St. Martin's place	Thursday	8 P.M.
Royal Astronomical	Sumner House	Friday	8 P.M.
Royal Asiatic	14, Grafton-street	Saturday	8 P.M.
Royal Botanical	Regent's-park	Saturday	8 P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

## PUBLIC COMPANIES.

COMPANY.	MEETINGS.
Leeds Banking Company	Music Hall, Leeds, Feb. 6, 11.
Durham Junction Railway	Quayside, Newcastle, Feb. 7, 12.
Newcastle-upon-Tyne Banking Co.	Assembly Rooms, Newcastle, Feb. 7, 11.
Metropolitan Wood Paving Co.	4, Millbank row, Westminster, Feb. 8, 1.
Northern and Eastern Railway	London Tavern, Feb. 9, 1.
London and Brighton Railway	London Tavern, Feb. 9, 1.
London and Birmingham Railway	Easton Station, Feb. 10, 11-12.
West Wharf Jewellery Ass'n	23, Threadneedle-street, Feb. 11, 12.
London and Westminster Bank	Bank, Lothbury, March 1, 1.

## NOTICES TO CORRESPONDENTS.

The *MINING JOURNAL* is regularly published about Two o'clock on Saturday afternoon, at the office, No. 25, FLEET-STREET, where it can always be obtained, and there is no cause for irregularity in its supply, in town, other than neglect on the part of the agent through whom it is ordered; but, as respects the transmission to country subscribers, the blame is shared with the Post-office authorities.

By the accidental omission of a figure in our statement of the expense of labour that would be saved to the South Eastern Railway Company, by the great explosion at Round-down Cliff, at Dover, in last week's *Journal*, the sum was stated to be 1000*l.*, whereas it is fully expected it will be nearer 10,000*l.*

"L." (Warwick).—The total earnings of the York and North Midland Railway, during the past year, was 50,000*l.* "L." can arrive at all the particulars he requires, by consulting our "Railway Traffic and Share List," which we believe to be as correct a source as he can find.

"J. M." (City).—We are obliged to our correspondent for his note, and shall endeavour to profit by his suggestion.

"A Constant Reader" (Leeds).—The subject has been noticed at some length, on several occasions, in our columns, as will be found on reference to the Index to the last Volume—a copy of which has been addressed as desired. We should be glad to receive the promised communications.

"A Sufferer" (Stroud).—Is "A Sufferer" a fool or a knave? We suspect the latter. He must as well know his intentions to be false as we consider them ridiculous.

BOOK REVIEW QUESTION.—Mr. C. W. Williams's letter, in reply to Mr. Billingsley, will appear in our next.

The offer of "T. J." is declined.

"E. R." (Newport).—We are much in want of information of the nature referred to, and gladly accept our correspondent's offer.

PROFESSOR VICKERS'S LECTURES ON CIVIL ENGINEERING.—The last lecture of the second course, being a general summary of the whole course, delivered by the Professor at the University College, will be published in our next *Journal*.

RAILWAY STATISTICS.—Mr. E. Langton's annual statement of "Calls and Traffic on the Principal Railways in Great Britain," contains nothing beyond what has already appeared in our columns.

To the many correspondents whose communications remain unnoticed, we have only to state, that we are preparing ANOTHER SUPPLEMENTARY SHEET, in which we shall endeavour to work up all arrears.

Received—T. Deakin—U. Thompson—"An Inquirer"—"Britannicus"

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, FEBRUARY 4, 1843.

\* Parties desirous of ordering the *Mining Journal*, can do so, either direct to the office, or through any news-vendor or bookseller in town or country. Notices of irregularity in its delivery are requested to be forwarded to the office, where every attention will be made to rectify the cause of complaint.

In another column will be found a letter from Mr. J. P. BUDD, on the question of hot and cold-blast anthracite iron. While we differ with our correspondent, and disclaim anything approaching to legal knowledge, yet we cannot but refer to the remarks made in a late number as expressive of the opinion we entertain, which is, that the two questions referred to in his letter are perfectly distinct. However, as Mr. BUDD tells us he is advised "that the relative cost of the hot and cold-blast anthracite processes is, after the question of licence, the very point that may be litigated" between Mr. CRANE and the Ystalyfera Company, we presume there is something in the back-ground with which we are unacquainted. Most certainly, we never considered that there was a question as to the patent right, either on the part of Mr. BUDD or Mr. CRANE; and, as it appears from the letter of another correspondent, that legal proceedings on the part of the latter were instituted three years since, it could not be novel to Mr. BUDD, and should, therefore, have been considered in the early stages of the discussion.

We do not understand that Mr. CRANE imposes any such course as that stated by Mr. BUDD—viz., the introduction of himself and agents to the Ystalyfera Works; but merely suggests that, on both sides, everything should be fair and above-board, so that there should be no grounds of suspicion as to unfair practices or deception being resorted to. The object, we believe, on the part of Mr. CRANE, alone, is that the investigation and report shall be referred to men of honour and ability, such as Messrs. MURPHY and FAIRBAIRN, or a commission appointed by the Institution of Civil Engineers (to whom the report should ultimately be referred), who will have no bias or private interest to influence them. The question of the superiority of the one description of iron over the other, we admit, may be tested without an inspection of the respective works; but Mr. BUDD will, we think, agree with us that, so far as the interests of the coal-proprietor and ironmaster are concerned, there is another question, which is, the economy attendant on the manufacture, whether as regards cost of fuel, yield of materials, or "make" produced from the furnace.

We have received a communication from a correspondent, animadverting on our remarks in last week's *Journal*, with reference to the proceedings at the meeting of adventurers in Carn Breu, reported therein, who says—"A. B." cannot but remark, that Mr. ENGLISH's "sneer" at Mr. JOSEPH LYLE, in his article of last week, was misplaced, of which Mr. ENGLISH must have been himself aware, unless he had forgotten that 'A. B.' assured him a strict inspection had been made of all the accounts of Carn Breu, and that Mr. LYLE was perfectly free from all charge." We need hardly say, the writer is well known to us, and is of the first respectability; and we take this means of replying to his communication, because we wish to set ourselves right with him and the public, and also to do justice to Mr. LYLE. Now, if we take the minutes of the proceedings, we shall find that Messrs. J. VIVIAN, M. WILLIAMS, F. HILL, and C. K. VICKERS, arrived at the conclusion that it was "improper to institute inquiries into the management of the mine, extending over a period of ten years," consequently, in arriving at the conclusion, which forms one of the resolutions—viz., that "The adventurers (four in number) are decidedly of opinion that the slightest charge, or imputation, does not exist against the

honour or integrity of Mr. JOSEPH LYLE"—we did feel that "the adventurers" were somewhat hasty in their resolve—"in the absence of any inspection of the accounts;" but which, as we said last week, might be construed "as highly creditable to that gentleman."

As our attention is directed to the resolutions, it may be well to recapitulate one other, which will apply to Captain JOSEPH LYLE, as also to Captain JOHN LYLE, who was the principal underground agent, and will, as we think, justify the "sneer" on which our correspondent remarks so testily. It is this—"Mr. JOSEPH LYLE, having stated that his brother, Captain JOHN LYLE, was unable, from a wounded leg, to go underground as often as was necessary (no novel fact), and suggested that a principal agent should be appointed, and also requested that a competent cashier should take the exclusive management of the accounts," for such are the words of the resolution. We find "It was resolved that such suggestions be recommended for immediate adoption."

Thus, it is clear, while the adventurers (in the absence of all evidence) acquit Capt. JOSEPH LYLE from the commission of any act affecting his honour or integrity, they, at the same time, dismiss him from their employ, as also his brother; they deprecate the arrangement with the English Copper Company, and further declare "that no mine can be satisfactorily or efficiently managed, unless periodical meetings be held on the mine, as fixed by the committee of investigation; and all the books and accounts be open at all times for the inspection of the shareholders." What inference, we would ask, is to be drawn from this expression of the adventurers, acting on the recommendation of the committee of inquiry, if it be not that such course has not been previously adopted; and that, with secrecy and studied concealment, the interests of the shareholders have been sacrificed.

It is unnecessary to say more on the subject. Capt. JOSEPH LYLE is acquitted by the adventurers, at a meeting held when four in number assembled, and on which occasion he submitted the propriety of his own retirement or dismissal, and that of his brother. He certainly does express "a wish that the fullest investigation be instituted into the past management of the mine," thus anticipating the change conveyed in the following resolution; but the adventurers very prudently considered that their attention could be more beneficially directed to the present and the future, than in looking into the past, which could not be recalled, and which was the less necessary on their part, from the appointment of a committee of investigation, which has not yet closed its inquiry, or submitted, by way of report, the result of its labours. We would advise our correspondent not unnecessarily to court discussion on points where his friend is manifestly so vulnerable.

The approaching meeting of the Durham County Coal Company promises to be of an exciting nature, if we may judge from the nature of the correspondence, inserted in the late Numbers of our *Journal*; the shares having become materially deteriorated in price, mainly arising from the circumstance of the dissensions which exist, while the loss which has attended the operations of the company, without reference to the original transaction, doubtless considerably adds thereto. It is with regret we ever find ourselves called upon to notice a division between the management and the operative, or practical, agents; and, in the present instance, it is the more to be lamented, inasmuch, that the company, having extricated itself from the former direction, with new men and new measures, was expected, at least, to have attained such a position as would secure to the shareholders some return for their advances; whereas, it would now appear, that, what with ill-success, mismanagement, and dissensions among themselves, they promise to make a dead loss of the capital embarked. We shall narrowly watch their proceedings, and report as occasion may require.

Mr. MATTHIAS DUNN has issued another circular, and, although we can feel for his peculiar position, the view we previously entertained of the impropriety, if not the impropriety, of the course he adopted, still remains. It is clear that a full exposition of the affairs of the company must take place, to do justice to all parties; and we trust that personalities will be cast aside, and the merits alone form subject for deliberation. We can imagine faults on both sides, and the jealous bickering between agents, which we fear has led to much of the disorder into which the affairs of the company has fallen. There is nothing like openness and straightforward dealing. Mr. DUNN has, as well as others, lent himself to concealment of abuses, if such existed, and we repeat, he was un mindful of the responsibility imposed upon him in his office of viewer, by withholding information which should have been communicated to the proprietors, or his remarks now are unequalled for until a meeting shall be assembled. If Mr. DUNN has charges against the direction, he should not have withheld them until his services be dispensed with, and, having once come forward with a charge against the board of management, it behoves him to lay the whole facts before the proprietors, so that they may be in a position to take some determined course at the meeting to be held this month; whereas, by the loose and unsatisfactory circulars which have proceeded from that gentleman, he leaves the question open, while his remarks are calculated to prejudice the parties who form the objects of his attack. We have only again to repeat, that we hope the proprietors will take the matter into their own hands, and not be blinded by prejudice, or allow their interests to be compromised by party spirit. The letter of Mr. GIBSON, inserted in our present Number, is a denial on the part of that gentleman of the charges preferred against him; and we trust that all parties who are implicated in the charges of mismanagement, if not of dishonesty, will be able to give as satisfactory a reply to their accusers.

It is with some surprise we observe, by our advertising columns, that no less than twenty-five tons of SMITH'S Patent Wire Rope is announced for sale by the London and Blackwall Railway Company. The cause to which we are to attribute the disposal of so large a quantity is, to us, inexplicable, but we shall, antecedent to the publication of our next, ascertain the cause. We cannot imagine, for a moment, that the wire rope is likely to be superseded by the use of hemp, or any other material; and, therefore, presume that the sale arises from motives yet to be explained, and which have no reference to the merits of the patent.

## RAILWAY AXLES.

A series of highly-interesting and important experiments was made at Camden Town station, on the London and Birmingham Railway, on Tuesday last, in the presence of Major-General Pasley, Mr. Barr, Mr. Gregory, and about thirty other engineers and gentlemen connected with railways, on the comparative strength of Young's patent hollow axle, and the most approved solid ones now in use. The result was highly satisfactory, showing an immense increase of strength in favour of the hollow ones. The mode of process of manufacturing also appears much more certain, and a uniformity of quality can be depended upon. The axles were submitted to a twisting strain of nearly twenty tons, and a weight was caused to descend upon the axle, the deflection in the hollow axle being less than in the solid one, although the former was nearly 50 per cent. lighter. But the greatest improvement is in the mode of journals of the axle, which are also made hollow, but of a larger diameter than the solid ones, two or three blows with a heavy hammer being sufficient to break off the ends of the latter, and the hollow ones requiring thirty, forty, or even fifty blows, to cause a fracture. When it is remembered that among other accidents, the dreadful one which took place last spring, on the Fins and Vauxhall Railway, was caused by the breaking of a solid axle through the journal, two such improvements cannot be attached to this fact. Many parties present, went with a strong impression in favour of the solid axle, but at the conclusion of the experiments, there was a universal admission of the superiority of the hollow ones. We are given to understand that these axles can be manufactured at a price not exceeding the solid, and these ones, therefore, be no objection to their use on the score of economy.—*Railway Times.*

DATA FOR THE USE OF BLAST-FURNACE MANAGERS  
AT IRON-WORKS.—No. III.

BY SAMUEL BALDWIN ROBERTS, ESQ.

(Mineral and Metallurgical Chemist, Newcastle, Northumberland.)

## THE LIMESTONE.

The quantity of limestone used in making a ton of pig-iron in this district of country will vary from 15 cwt. to 25 cwt., and this principally in consequence of the fluctuating amount of earthy residua contained in the ores and the fuel. Some of the poor mines will contain 2000 lbs. of earth in the quantity of them required to yield the ton of iron—others, again, as the rich mill cinder, and best Lancashire, Devonshire, or Cornish ore, will not contain one-tenth that amount, or 250 lbs.; hence a furnace manager, who is generally restricted to the use of limestone for the fusion of his materials, will have to apportion that flux in his charges to correspond with the amount and nature of the earthy matters of his mines and fuel, and which "amount" and "nature" can only be known by analysis. There is another difficulty, however, in the way of the operator, and that is, the varying nature of the limestone itself. The result of hundreds of analyses has convinced me that no two strata of limestone, in the coal-field of this mineral district, are exactly alike—indeed, stones worked out of the same stratum, or bed, seldom continue of the same quality for, say, twelve months together, particularly if a "fault," or dislocation, should occur in the bed; here, again, the smelter can only safely find his way by means of analysis; all else will be mere guess-work, and, therefore, quackery, from following which, countless thousands in value of money and material have been totally lost, both to individuals and the country at large.

A fair average of limestone required to the ton of iron will (with certain exceptions of a local and particular nature) be 20 cwt., or 2240 lbs. This amount of stone will, if of good quality—say, holding 94 per cent. of carbonate of lime—contain—1st, 842.14 lbs. of calcium (the metallic base of lime) and 336.86; oxygen, forming 1179 lbs. of oxide of calcium, usually termed pure or caustic lime; 2d, 252.7 carbon and 673.9 oxygen, constituting 926.6 carbonic acid, which, united to the 1179 of pure lime, will form 2106.6 lbs. of carbonate of lime; 3d, about 4 per cent., or 89.6 lbs. of the stone will be foreign earths and oxides, the exact nature of which ought to be ascertained by analysis; and, lastly, 2 per cent. of water, or 44.8 lbs.—total, 2240 lbs. Some limestones will be nearly pure carbonate of lime and water, whilst others will contain foreign earths and oxides to the extent of 25 per cent., in which case great care should be taken in their selection for use in the blast-furnace—for instance, if siliceous or magnesian should greatly predominate in their composition, such stones will be inefficient in the smelting process, not only to the extent of their deficiency of lime, but to the quantity of that material negated, as it were, in bringing into fusion the injurious excess of silica or magnesia; the use of an inferior kind of limestone will inevitably put a furnace out of order, and thereby waste more lime and fuel than hundreds of times the cost of a superior flux—a circumstance which frequently occurs at establishments where process-work is permitted to prevail.

The protoxide of iron will crush silica or alumina (which are, of themselves, scarcely fusible) to readily enter into fusion at the temperature of a blast-furnace, but the results will be a black, and, what is usually termed, a scowering, cinder, with, perhaps, not one-half of the iron contained in the ores, and even that will be of a very impure description. A similar result would be produced with a deficient quantity of limestone or other flux; the iron, however, may be more in quantity, and of a somewhat better quality, yet a very considerable portion of it will remain in the cinder. But, when the lime, or other fluxing materials, are in sufficient quantity, and efficient quality, to bring the residuary earths of the materials into liquid fusion, with either a hot or a cold-blast; then the affinity of silica and alumina for protoxide of iron will be overcome, and the compound results will be—1st, a fluid, transparent, colourless (or, perhaps, with a slight tinge of green), glassy cinder, composed of all the foreign oxides of the limestone, or other flux, the mines, and the fuel, and which cinder may, with due purification, be worked up into bottles, jars, carboys, and other glass utensils, and that almost immediately from the fall of the furnace; and, 2d, a dark grey pig-iron, alloyed with carbon, manganese, and small and variable portions of the metalloids, calcium, silicon, aluminium, titanium, chromium, and vanadium, should the raw materials happen to contain the oxides of those respective metals; and should the alkalies, potash, soda, barytes, or strontian, be in the mines, fuels, or fluxes, their metallic bases would, more or less, be revived, and become alloyed with the pig-iron. The alloy of iron and potassium, and also that of sodium, would be a comparatively soft metal, and one easy of future purification, but the alloys of iron and the other metalloids, particularly silicon, will be hard, often brittle, and generally difficult to be reduced into pure bar-iron, without experiencing a great loss of yield in the process.

In this mineral district we have three distinct kinds of limestone—viz., 1st, the *siliceous*, or stones in which silica will be more or less combined with carbonate of lime, water, and peroxide of iron. The proportions of silica will vary from 4 to 20 per cent. of the entire weight of the stone. Limestone containing more than 6 per cent. of silica will, at the works in this district, seldom work well in the furnace; but, should they contain more than 10 per cent., let them be avoided entirely, at any cost, or the consequence will be a great pecuniary loss in materials and labour, and a very inferior quality in the pig-iron produced. 2d, the *aluminous*, or those in which alumina will be a component part. Its proportions varying from 2 to 10 per cent. Although I have demonstrated this kind of aluminous limestone, it is not that alumina is, in quantity, always the predominant impurity of the stone, which, indeed, is very seldom the case; but because alumina, if equal in weight to half the amount of silica, will neutralize its injurious effects in the blast-furnace; and, therefore, a stone containing 5 per cent. of alumina and 4 of silica, or any other quantity of alumina and silica, if in this ratio, will, when used in due proportions, be a good flux for the iron mines of this country. An excess of alumina in these stones need never be apprehended. 3d, the *magnesian*, which is a limestone containing from 2 to 10 per cent. of magnesia, peroxide of iron, and silica, and also found in these stones, to the extent of from 4 to 12 per cent. of peroxide, and from 2 to 16 per cent. of silica. These limestones are, at the crops, or outcrops, of a brownish yellow, or fawn colour, and often of a sandy texture, and they are the worst sort of limestone the smelter can use, for magnesia, even in small quantities, will very materially impede the fusion of the other earthy residua of the materials in the furnace, to say nothing of the large portion of silica they generally contain.

A stone that will burn into white lime exhibits a good criterion for the smelter, but the only safe and sure way of proceeding is, as before repeatedly observed, by analysis, without which the operator will be working at random, and his results the mere effect of chance. There are limestones in this district which are of a dark, muddy, blue colour, and some almost black; these contain a portion of iron, or uncombined carbon, varying from 1 to 4 per cent. of their weight; their earthy impurities are alumina and silica, the alumina generally prevailing—consequently, such stones will, if used in sufficient quantity, invariably work well with the siliceous ores of this part of the country. Chalk, oyster-shells, calcareous ore, fluxes of lime (usually called "Derbyshire spar"), carbonate of barytes, and many other materials, may be advantageously used as fluxes for the siliceous iron ores, or ores containing both alumina and silica; but for the calcareous kind, clay or shale, or materials in which alumina will predominate, are the natural fluxes, whilst the aluminous ones will require a portion of the calcareous to be added to them, so as effectually to bring their residua into proper fusion. Therefore, if on low-work were to be established at some convenient spot, where the siliceous, the aluminous, and the calcareous iron ores may be economically and constantly obtained in sufficient abundance—say, for instance, at Newport, in Northumberland, or Cardiff, in Glamorganshire (at either of which ports due supplies of the ores in question may be readily procured)—a result may be obtained that would be of a much better and more uniform quality than can possibly be made by any separate use of each mine, or by any binary combination of them, because their residuary earths—that is, their lime, their silica, and their alumina—would, on a due mixture being made of such ores, reciprocally neutralize and fuse each other, at the temperature of a blast-furnace, into a clear, fluid, and nearly colourless glassy cinder, whereby the iron would be left entirely free to unite with the most desirable dose of carbon to produce the best, or, at least, the purest possible species of pig-iron—a result of this description would, with comparative ease, be convertible into wrought-iron of a quality equal to that valuable kind usually termed "cleanest iron," and at a cost very little, if any, exceeding that of the commonest bar-iron made in South Wales.

(To be continued in an early Number.)



## ORIGINAL CORRESPONDENCE.

ANTHRACITE—HOT AND COLD-BLAST PROCESS.  
TO THE EDITOR OF THE MINING JOURNAL.

SIR.—It is a coarse, but true saying, that a man who is his own lawyer, has a fool for his client, and whilst I may respect your opinion, in other than legal matters, I cannot disregard the advice given me, that the relative cost of the hot and cold-blast anthracite processes, is, after the question of license, the very point that may be litigated between Mr. Crane and my partner. I should be sorry to suspect anything unfair, on Mr. Crane's part, yet I cannot but perceive that the idea of introducing himself and his agents to these works, is an afterthought, and did not form part of his first proposal, which was, to leave the investigation to Messrs. Muesel and Fairbairn. His former letter left me under the impression, that he had discarded these gentlemen, and that the Society of Civil Engineers was to be invited to appoint investigators; I perceive he now proposes that three gentlemen shall report, and the Society of Civil Engineers decide. So let it be. Yet, surely, these gentlemen can form their judgment on the merits of our respective plans, without subjecting us, being, as we are, on unfriendly terms, and engaged in a lawsuit, to the danger and annoyance of the inspection proposed of each other's works. For myself, I confess I wish to have witnesses, less likely to be biased, even on matters of fact, than the agents of an opponent. If Mr. Crane be really anxious to have his iron tested with ours, I trust he will make no more difficulties, and, no doubt, he will readily include in his investigation, the iron he makes with a mixture of coke. As to the cost of my process, I am so far satisfied with it, that it is much less than that with hot-blast, as practised by us, but what the difference is, I reserve for legal proof, should I be called on to make it. If this investigation, by impartial scientific men, as first proposed by Mr. Crane, independent of his interference, does not now suit his views, I am content to leave the decision to the sure test of time and public use. At any rate, I trust your readers will be spared the discussion of our differences and disputes.

Ystalyfera, Swansea, Jan. 20. J. P. HEND.

ANTHRACITE—MR. CRANE AND THE YSTALYFERA COMPANY.  
TO THE EDITOR OF THE MINING JOURNAL.

SIR.—The letter which appeared in your columns of last week, from Mr. Crane, does not appear to me to set the matter right with the public, as regards the legal proceedings taken by that gentleman against the Ystalyfera Company. As it is of the first importance that a comparison should be made between the iron made from hot and cold-blast, with anthracite on the fuel; and as such would appear only to be impeded by the measures now in course against the Ystalyfera Company, which might be assumed by the general reader as having been only instituted lately—it is, I think, due to Mr. Crane to state that legal proceedings were instituted by that gentleman in the latter part of the year 1859, and therefore cannot be said in any way to apply to the question at issue, of the merits of the two respective patents. I hope that Mr. Hudd will look at the matter only in a scientific point of view, and leave the legal question, which in no way interferes therewith, to take its regular course, and with which he cannot be supposed to be connected, except so far as the interest he naturally feels for his employers.

Temple, Feb. 3. A. BARRISTER.

## ANTHRACITE IRON—HOT AND COLD-BLAST.

SIR.—Referring to your letter of 24th ult., which you did me the favour of inserting in your valuable paper of the 28th, I beg to hand you more further information as I have acquired, although, I doubt not, Mr. Hudd will, in your forthcoming Number, furnish you with more accurate data, in which case, you will please omit the insertion of this communication. The observations which appeared in your Journal of last week, have created some attention in this neighbourhood, and, on further inquiries, I learn (but how far importance is to be attached to the representation, I do not pretend to say) that the big furnace is not making thirty tons a week, which I should be sorry to find confirmed, because this is twenty tons per week, or two-fifths less, than the previous make with hot-blast, from one of the smaller furnaces; I am, however, told that the furnace is not working fairly, as from its greenness, it is considered politic not to turn on the full blast, and this may reasonably account for the diminished output, as it would be imprudent to work a furnace to its full power, until the materials of which it is composed, were well seasoned. I am, with many others, most anxious to acquire information as to the relative cost by the two processes, for, as regards the relative qualities of the iron, that point, I think established. If my information be correct, the iron made by Mr. Hudd's process, is attended with an extra cost of 10s. per ton, but this may be met by the improved quality and price it commands in the market. The weekly make, I understand further, is reduced to six-fifths to seventy tons on the three furnaces, which is not more than 50 per cent. increase on the make of one with the hot-blast process. The cost of agency would thus be very considerably effected.

B. T. M.  
Swansea, Feb. 1.

(A letter from Mr. Hudd will be found in another column, but as it does not enter on the subject of our correspondent's letter, we give insertion to his remarks. We presume there can be no extraordinary secrecy manifested by his works—certainly not as far as our experience goes.)

## ANTHRACITE COAL.

SIR.—The interest which many of your correspondents take in the successful application of the above-named fuel to various purposes, induces me to send you the following extracts, from letters recently received from America, and trusting that the same may be acceptable to you and to your readers generally.

I remain, your's, &c.  
T. J.  
Newport, Jan. 20.

SIR.—In reply to your inquiry about the consumption of anthracite coal, we would remark, that it is used in this country extensively for domestic purposes, in making steam, melting pig iron in all our foundries, and for heating iron in the rolling mill, &c. It is also used in many of our steam boats. We should think it might be used advantageously with iron as a substitute for charcoal in working steel, for which purpose it has been found to answer well here.

SIR.—In some experiments made between two kinds of equal power and quality of fuel, it was found that, when the fire was up, the anthracite left the other behind; but every time the anthracite was rekindled it was found that a heat, equal to the anthracite fire, was not again gained on bituminous.

SIR.—It is a fact, that the anthracite heat only wants the means of being supplied with the air in a forced state, so that the fire may not be damped, to secure the heating the bituminous heat, not only occasionally, but for a considerable time.

## THE DURHAM COUNTY COAL COMPANY.

SIR.—I have always felt a great reluctance to notice anonymous statements, made through the medium of newspaper columns, relating to myself; but, by noticing upon, I should be bound to do the same to all, or be supposed to admit such as I did not notice or deny. There is one statement made in a letter, signed "Vindicta," in your paper of the 25th ult., which I have, however, thought it right publicly to contradict; and, having done so before in every possible way, I am surprised that it should again be made. The writer admits that I certainly had nothing whatever to do with the original formation of the Durham County Coal Company, but goes on to state, with the evident intention of neutralizing the effect of that admission, that "I was deeply implicated in that of the Northern Mining Company." Nothing can be more false than that statement, and I am much surprised if "Vindicta" is not himself fully aware that his statement is grossly and entirely untrue. I repeat, Sir, what I have already said, and again stated, that I had nothing whatever to do with the formation of either of those companies—that I never in any way, directly or indirectly, had one-fifth of a share in either of them, but, on the contrary, on a heavy loss by both, and to a greater extent, perhaps, than any one individual connected with either of them, and I defy any one to produce the shadow of proof to the contrary. I forbear remarking on any other matters till the general meeting of the shareholders, which I trust, from the immense importance, will be fully attended.

J. GILSON.  
Newcastle, Feb. 1.

(We must really trust Mr. Gilson's letter, regarding the charges alleged against him, and having affixed his name to the counter-statement, its truth must, therefore, be fully assumed. "Vindicta," if it is the right, will, doubtless, find evidence beyond mere assertion.)

## ATMOSPHERIC RAILWAY—NEW AIR PUMP.

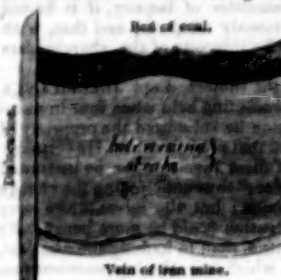
SIR.—It may be interesting to those connected with the construction of atmospheric railways to know, that an air-pump upon a new principle was exhibited at the Andersonian University here a short time ago. It was invented by Mr. Laing, of Dundee, I believe; its power of

exhaustion are stated to be very superior to any machine of a like description hitherto tried, and I should think the principle might be advantageously applied, or at least tried, at the works going on at present on the Dublin and Kingstown Railway. This new pump is worked by a wheel, which produces a circular motion, which is most powerful and rapid in causing an exhaustion of the air. I have no doubt Professor Penny, of the Andersonian University, would be happy to give any one interested in atmospheric railway experiments, a more particular account of its powers, if required.

Glasgow, Jan. 17. A FRIEND TO IMPROVEMENT.

## ON THE FORMATION OF MINERAL DEPOSITS.

SIR.—It appears to be the undoubted opinion of most practical miners, whatever effects the Deluge might have had upon the features of the earth, by burying some extensive tracts of country in the bottom of the sea, and compensating their destruction by elevating submarine districts of equal extent into dry land, that the more solid parts must remain as they were before that awful catastrophe, and as there is to them no satisfactory proof of any other agency, after a careful and well-directed investigation, tested by long experience, they seem to reject all theories on mineral deposits except their own—that of primary formation. The opposite opinions of Mr. Deakin and "A Workman," on heaves, or dislocations, has occasioned me to bestow somewhat more time and trouble to examine them than I had hitherto done, as I had ever considered all theories, incompatible with practice, of very little value. I have seen both seams of coal, and veins of iron mine, stripped from the side of a dislocation for scores of yards, where they have sometimes taken their regular bearing and sometimes not, but seldom found anything indicative of any violent commotion. The annexed is a sketch showing the forms of the veins, as worked from the side of a dislocation. The dislocation itself taking its bearing nearly real north, the direction of the mineral beds rising from the fault nearly east—sometimes one in ten, other times one in fifteen, after coming to their regular inclination. I have strictly examined the curved parts of the seams of coal and veins of mine, as represented in the sketch, but never yet found any vacuities in those parts. I have found the ends of the veins of mine, when removed from the dislocation, as smooth as glass, and often polished—



so, but as level as they would be cut by a collier's pick, and no alteration whatever, but for a few yards from the fault, reduced a little in strength and quality.

Jan. 30. A SOUTH WALES COLLIER.

## ON THE ORIGIN OF THE METALS.

SIR.—The alchemists were of opinion that metals proceed from a certain *primum rus*, or first seed of metals, which is a kind of moist vapour, or gas, that changes the earth and moisture it meets with in a vein into a mineral body, or substance, and thence converts the minerals into ores or metals by a continued fermentation or elaboration in the mines, caused by the heat proceeding from the centre of the earth; others, again, maintain that the formation of minerals is to be attributed to the action of the sun upon the earth, and not from central heat; and some think that cold is the proximate cause of their formation, by condensing and congelating certain juices of the earth. That climate and association has much influence in forming the metals is evident, for some ores are generated in the superficial beds of the earth in hot latitudes, and are apparently the peculiar effects of atmospheric heat—as, for instance, gold and silver, which are, indeed, known under all latitudes of the earth, are more particularly abundant in high lands noted within the tropics, and it is to be questioned whether a high degree of atmospheric heat is not absolutely necessary to produce gold, for it is certain that all those portions of the earth in which this metal is found, and which are now disposed beneath temperate or frigid climes, were once beneath the tropics, and, in the present day, the greatest quantities of gold are found in Borneo, Sumatra, Malabar, Africa, and South America; it is also said to abound in the East Indies, but, I think, erroneously so, for the gold circulated in that country is chiefly brought from the Malabar and African coasts. There is a remarkable passage of Peter Martyr, counsellor to the Emperor Charles the Fifth, concerning this metal, in which he says—"They have found by experience that the vein of gold is a living tree, and that the same, by all ways, sprouts and springs from the root, and the soft pores and passages of the earth, and ceases not until it discover itself in the open air, at which time it sheweth forth certain beautiful colours instead of flowers, round stones of golden earth instead of fruit, and thin plates instead of leaves. These are they which are dispersed over the whole island (Hispaniola) by the course of rivers, eruptions of the springs, out of the mountains, and violent falls of the floods; for they think that such grains are not engendered where they are gathered, especially on the dry land, but, otherwise, in the rivers. They say that the root of the golden tree extendeth to the centre of the earth, and this taketh nourishment and increase; for the deeper they dig they find the trunk thereof to be so much the greater, and, as far as they may follow it for abundance of water, springing in the mountains. Of the branches of this tree they find some as small as a thread, and others as big as a man's finger, &c." On the other hand, the natives of South America remark, that gold, when on the surface soil, is always near, or accompanied by, a particular ferocious plant, from which its radical is derived; and in the mountains of Abyssinia it is also said to abound most in and among particular grasses, and is found sometimes in large grains at their roots, after the periodical rains are over; the Abyssinian gold always contains a large alloy of silver, which characterizes it from the gold of Western Africa. It is an indisputable fact, that the most precious gems are natives of hot climates, and belong to the superficial soil, and each to a kind of soil most suited to its nature; that their hardness and beauty depends upon the degree of atmospheric heat received, as well as upon their chemical or mechanical combinations, and I have very often remarked, that all gems (if, perhaps, we except diamonds) lose much of their fire and beauty in this country; on the other hand, we know of no instance in which volcanic action has, in any manner, come near atmospheric action in producing gems or metals, and experience proves to us, that the one and the other are superficially disposed within the earth, and are dependent for their generation on the material of the beds in which they are generated, and on atmospheric influences, the enormous heat of such metal being peculiar to that metal, or to two or more of them, and uniting with the acids in certain hard and uniform proportions. It is a certain fact, that the metals are most abundant in aluminous rocks and earths, and that sulphur or vitriol enter largely into the composition of the beds and veins, and appear to be essential for the generation of some of the metals. I certainly must fully agree with Mr. Geoffroy and others, that the metals may be the result of the mixture of certain matters which have nothing metallic in them; so, more strictly speaking, it is highly probable that the pure elementary principles of the air and water, under certain chemical combinations with each other, have the tendency to assume the metallic form, and it is equally probable, that, under certain conditions, all the metals decompose, returning to their primary conditions.

## ON THE FORMATION OF MINERAL DEPOSITS.

SIR.—Being conversant with mining questions for several years, and, consequently, having obtained some practical knowledge on the subject, I feel a great interest in the late discussions which have been brought forward in your interesting Journal. I do not know what kind of formation Mr. Deakin has in his view, it may be difficult to other parts of the country, but at Swansea the coal beds have been much heaved, and dislocated by the main fault, which, uniformly, runs magnetic north; the heaves are named polished walls by their rubbing one against another, and these heaves are principally horizontal. A very striking proof of a heave was discovered some years ago in the Consolidated Mines. In driving upon a level many fathoms below the surface, a heave was encountered by a broken intersecting it. At the point of intersection, the miners observed a large detached block of quartz in the beds, which presented a sharp fracture towards the surface. After driving some distance north on the broken, the points of rise of the beds was discovered, and in it was a similar block

of quartz, presenting the same appearance of fracture. The two pieces were taken out, and in placing them together, the fracture was found to correspond so exactly, as to leave no doubt of their being once united. A similar fact was discovered in the South Wales coal basin, near Merthyr. In a bed, on one side of a main fault, was found a fossil tree, somewhat flattened by the pressure of the superincumbent beds; the section was six inches by three inches. In the course of driving at about fifty yards distant, the corresponding piece was found on the opposite side of the fault; both were extracted, and immediately identified as belonging to the same tree—it was a fossil fern tree. I could not find a great number of heaves in Cornwall, more especially in this district, and they are all of the same kind, and principally northward heaves, with a little rise in that direction; and the more intelligent miners of this county have rules, which they have received from their fathers, by which they can find out the lode when heaved, and these rules are somewhat similar to that magnetic theory lately brought forward in your paper. However, cases do arise occasionally, which almost baffles all our miners; owing to a complicated set of slips and heaves; fortunately they are but few, and, on the whole, a great uniformity in the heaves prevail.

J. T.—s.  
Redruth, Jan. 30.

## FORMATION OF MINERAL LODES.

SIR.—After reading Mr. Budge's statement of facts, inserted in the Supplement to the Mining Journal, of Saturday, 28th inst., I recollect, many years ago, being at a mine called Seal Hole, situated in the parish of St. Agnes, in Cornwall, now called Polberon Consols, seeing there a flat blue killas, or clay-slate stone, about, perhaps, four inches wide, five or six inches long, and a half inch thick, on the surface of which we could distinctly trace several rich tin lodes in miniature, so very similar to the disposition of the great metallic lodes, that it might be thought an exact representation of what you might expect to see in the plan and section of a mine. The little representatives of lodes, the largest of them, perhaps, was not much larger than a stout packthread, and others less, all intersected by a little diminutive cross-course composed of what the miners term spar, which heaved the different veins, as is done in a large champion lode. I have often thought, and regretted, that I had not preserved the stone, and ground the face of it, it would be, no doubt, considered by many as a great curiosity. From the above, and other alike corroborative evidences, I am led to believe also that the lodes and the country about them, was formed at one and the same time.

SAUL PININN.  
Hemel Stuby, Feb. 1.

## ON THE FORMATION OF MINERAL VEINS.

SIR.—I am sorry "A Workman" should suppose I was uncourteous to him; I did not intend it, and will endeavour to profit by the hint; at the same time, I hope he will allow me to convince him that he has taken erroneous views, even of up and down throws, in coal formations; and I should have been obliged—and, indeed, the public would have been more enlightened—by his descriptions of faults, had he said where those faults were to be seen, as also their bearings towards each other; for, I must say, some of them are rather curious things, especially his first, and his last but one; at least, they appear to me so.

I beg leave to put the following question to "A Workman"—There are two faults in a coal-field, not quite parallel to each other, but nearly so; the one is an up-throw to the west, and the other is an up-throw to the east; and both faults lean over at the top, the one to the west, the other to the east; and far down in the earth these two faults go together; the space between them forming something like the letter V. Now, I would ask the "Workman" if the piece within the letter V, where the veins are lower than they are on either side of it, could, by any possibility, fit any other part of the letter than the one which it now occupies? Its wedge-like form would prevent it going any lower; and, if it was raised up, it would not fill the space above its present resting-place. Will "A Workman" say that the piece was ever suspended up, in the wide part of the letter V, and lowered gradually, until it came down to a fit, and remained there? Then, he says, with regard to the seams of iron mine having a difference in the thickness of ground between them, he expects I shall allow that such is of small importance in the matter, as such changes often occur without any break in the strata; and to prove it, he tells us that he has worked a coal mine, with two feet of shale in the middle of the coal, on the rise of the coal-field, and the bed of shale is reduced to eight inches in the dip. He does not say at what distance it was in that the bed of shale, two feet thick at the rise, tapered down to eight inches. Now, there could have been no tapering, according to my showing; because, if both sides the dislocation were ever one piece, there must have been a difference of fourteen inches between the veins in that place, consequently there could be no tapering; and, having no comparison, the veins on each side the dislocation never joined together.

But there is another opinion of "A Workman" which ought to be corrected—an opinion expressed by him in your Journal a few weeks back. He says, the veins of coal go thinner as they go to the dip. Why, by such reasoning as that, the fine veins of coal in the South-Wales Basin will be squeezed into pan-cakes in the middle of it. Where is the use of boasting of the size of this most extensive coal formation? I have calculations, that have been made, showing that the coal from this basin are, at least, at an immense annual get, for thousands of years; but, if "A Workman's" ideas are to be depended upon, what a miserable mistake has been made in these calculations, for, according to his notions, the coal in the middle of the basin will be found too thin to get. I have read some of the schoolmen's opinions, where they have thought the coal-basins were filled in the same manner as an old woman would fill a bowl or a dish with pudding, that is, to keep pouring into the vessel until it flows over the edge of it. Now, such an opinion as that is really at variance with "A Workman's" notions; for, on the latter plan of coal-basin filling, the coal would be thin at the crop, and thick in the centre of the basin. Such foolish un-workmanlike ideas I have seen brought forward, from time to time; and it was such nonsense as this which made me pronounce them an insult to common sense.

But, however, to "the law and the testimony," facts will always decide erroneous notions. A gentleman of this neighbourhood has, very lately and very spiritedly, sunk a pit, four or five miles from here, and nearly upon the dip-line from this place, in a very deep valley, surrounded by mountains, 1000, or, perhaps, 1200, feet high above the top of his pit. The pit is 128 yards deep down to the upper coal of the class of blast furnace coal, and he has found that vein of coal as perfect and quite as thick as it has ever been seen in this district. What will "A Workman" say to that? he tells me I am one of themselves; I believe we are both engaged in the iron-making business, but I think his employment is on the surface, and I am employed beneath the surface of the earth. And here I beg leave to say, that I never knew a thoroughbred practical miner that ever was a "second formation" man.

Your correspondent "Curio" has requested to know how faults are to be managed, having lost the coal at the top on the one side, to find them again on the other? If an up-throw fault crosses the workings, it will invariably lean from you, more or less, at the top; but faults do not all lean to the same angle. If the same vein worked on the lower side the jump is intended to be worked on the upper side of it, on the same level, it must be by crossing the fault to the dip of the strata, and, continuing the drift level, the same vein will come down by degrees, in proportion to the inclination of the strata is of a flat or steep pitch, and the length of the drift will be in proportion to the height of the up-throw; in such cases as the above, the miner gains in breadth of coal by the up-throw. If the fault should be a down-throw, and it is intended to carry the work on, on the same level, an operation exactly the reverse to the one above must be adopted. A down-throw, when met with, will always lean upon you at the top, and must be crossed to the rise of the strata, the drift going up, and the vein rising. It will again come up to the same level, and the drift, as before, will be, in length, proportional to the depth of the down-throw. But in a regular worked coal-field, where several veins of coal and ironstone are worked at the same time, often, if an up-throw takes place, the fault is crossed, from an upper vein, or once into the vein you want; and, if a down-throw fault, go across it, from a lower vein upwards, into the one wanted; but, in a deep angle, between two up-throws, sinking is necessary.

I have seen great undulations in the dipping of the coal-beds, apparently in large steps, of very steep pitch, for many yards together, and then for a distance much more flat; but never saw those undulations follow the line of the surface, as the coal-beds are said to do at Blackheath mines, in Virginia, North America.

THOMAS DEAKIN.  
Swansea, Jan. 25.



TO THE EDITOR OF THE MINING JOURNAL.

*Pensance, Jan. 31.*

THEORY OF ELEVATIONS:  
TO THE EDITOR OF THE MINING JOURNAL.

*Brighton, Jan. 27.*

## TO THE EDITOR OF THE MINING JOURNAL:

*Normality test, P=0.3*

TO THE EDITOR OF THE MINING JOURNAL.

**Book from Words.** J

**参考文献**

for you to read it, all right.

OF PATENTS—MR. C. W. WILLIAMS  
has removed his office to No. 100 Broadway.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

(ADVERTISEMENT.)

THE EDITOR OF THE MINING JOURNAL

"He has credited his own life,"

"I will now proceed to state in what Mr. Williams further says in his letter to section ———— My patient, on the contrary, is for interposing cold air in a divided room." "Ah, but what says Mr. Williams in his patient? Why, he actually states, 'followers ————' These distributors being of a red heat will also promote the heating of the air as it passes through them, and hence from their numerous apertures ———— will further maintain the high temperature at which the gas should be kept for heating purposes." "What says Mr. Williams of cold and warm air? He says that one of his compositions is ———— What now because of Mr. Williams's broadly defined objections between the hot and cold blood principle? Is it not clear that he is denying Mr. Hall's rights, and in showing us aside his own wind as possible to lay aside that gentleman's patented invention, and to do so not trespassing upon it, and thus to make his imitation of it an impermissible one possible? As to the great wish of invention of Mr. Williams, in removing Mr. Hall's jets of air, it is equal that of removing large lamps of gas in smoking law, to small ones. Beyond the important process, Mr. Charles Wye Williams's wonderful invention certainly is not new."

*Nottingham, Jan. 11.* A. Lennox etc.

Each correspondence has, for some time past, taken place on this subject, and among the various letters we have given of plans for the perfect combustion of the gases evolved from coal and other fuel, that of Mr. Jackson may be considered as worthy of particular notice. A furnace on this plan has been, some months, in operation at the manufactory of Messrs. Raston and sons, engineers, Great Guildford-street, Southwark, and by its application a saved work in the consumption of fuel. The engine at this manufactory is one of 150-horse power, and is applied to turning metals, sawing wood, &c., and some of the spare power is made available for carrying in operation the design of the patentee. The fire bars form an endless chain, passing over two rollers, one in front, and one at the hind part of the furnace (which is built on the old fashioned principle, with a single bridge) and the front roller is connected by a band to the main shaft of the engine, by means of which these bars are united, are about two inches from their ends, thus forming, in passing over the front roller, powerful levers, which lift the coal or other fuel band, and the gases which it contains are thereby swept without chugging, as by the common method; an escape is given from the chimney, and the bars are always free from clinkers. By this plan, fuel of the most common description can be burnt; during the time we were present, coal, coke, clinkers, and refuse fuel of all kinds were used, and the furnace, which passed over the hot fuel, consisted of *mere earthy matter*—a great advantage obtained by this plan, is the uniformity of heat supplied the boiler, and the consequent regularity of the motions of the engine, making it no longer liable under the command of the engineer. The furnace we were seen in operation is only a temporary one, but from the effects testified in its design that the principle is good, and that it will eventually be tried out to very great advantage.

ENGLISH MINTER

ENGLISH MINES.  
HOLMBURN MINING COMPANY.

UNITED HILLS MINING COMPANY.

IT MINERAL JEWEL MINING ASSOCIATION

Jan. 30.—Seventy fathom level east, on Wheel Jewell Ind. is impossible since our last, worth 141. per fathom. Stopped in the half of this level, worth 201. Seventy-west, on same lode, worth 201.—ground very favourable for driving. Fifty-seven east, on same lode, worth 181. Wires sinking below the forty-two, worth 181 per fathom; the same level, west of Rodgers' cross-cut, worth 81. Wires sinking below the forty-two east, on little ground, worth 101. Fifty-west, on same lode, worth 101. Wires sunk, ground not favourable for driving. Our intermediate drilling will be the 7th level, when we shall sample about 100 tons of the southwestern ore. R. ARNOLD.

FRIGOLLAN MINING COMPANY.

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**FOREIGN MINES.**

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## SEP 19 1963 MONTEICHI, N.M.

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COMPARATIVE CARPENTERSHIP LEADS AND BUILDING. — Yesterday, Mr. Townsend delivered a lecture (the second in a series) on the subject of the comparative carpentership leads and building at the King's College, a report of which, with diagrams and tables, will appear in our next; the length of the lecture, and the numerous engravings, probably the best and the greatest number.



### PRICES OF MINING SHARES

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